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### 3. Scenario Title: Cognitive and affective determinants of health during an epidemic/pandemic outbreak for students with Intellectual Disabilities

#### **Main partner responsible**

The Educational Approaches to Virtual Reality Technologies laboratory (EARTH lab), University of Ioannina, Greece

#### **Overview / Context**

Scientific literacy development and social skills improvement regarding an epidemic/pandemic outbreak are crucial for students with intellectual disabilities (ID), for them to participate equally in school and society. The current scenario concerns a cognitive approach that used a structured inquiry model with supplemental elements of task analysis, time delay and prompting for small group of students. All the phases of inquiry are applied through a single subject design (baseline, intervention, maintenance, generalization) which is supported through digital educational resources and digital learning objects. Students with ID are introduced in scientific oriented questions regarding infectious diseases. Dynamic simulations contribute to the improvement of students understanding about viruses and vaccination. In addition, students apply social and decision-making skills in a problem-solving experience designed on an educational game. Completing the learning process, students conduct a guided project and produce an infographic presenting and communicate new knowledge and skills.

#### **Scientific content and its relevance to public health education**

- Scientific knowledge adequacy and perceived world interaction of students with ID.
- Design and develop of policies and practices based on evidence-practice that contribute to social disparities reduction regarding health.
- Awareness and new standards of social behaviour (social distancing).
- Measures of prevention and reduced anxiety of co-occurring health problems and social isolation for people with ID.
- Science and society promotion, social justice, equal participation, accessibility.

Students with ID experience limited accessibility and they identify their active role regarding awareness and claiming their rights as equal members of the society.

#### **Estimated duration**

At least 6 sessions/lessons.

The sessions can be extended in more lessons depending on students' individualized profile and the availability of lessons at school.

#### **STEM content**

- Highlighting STSE interactions.
- Basic concepts of biomedical sciences (e.g., infectious diseases, epidemic, pandemic, virus, etc.)
- Developing the dimensions of STEM, scientific literacy, health literacy and critical thinking related to STEM teaching with the aim of shaping active citizenships.
- Importance of science in order to claim social justice and to participate equally in society.
- Conducting inquiry (role of researcher, enhancing inquiry skills and problem-solving skills)

#### **Content glossary**

**Epidemic:** the large number of cases of a disease in a given period of time.

**Host:** the person being infected.

**Incubation period:** the time interval between infection and the onset of the first symptoms of the disease.

**Infection:** the entry of a pathogenic microorganism into a host.

**Infectious Diseases:** can be transmitted from one person to another. They are caused by pathogens such as viruses, bacteria, fungi and protozoa.

**Intellectual Disabilities (ID):** is a disorder that begins during developmental period and includes not only mental deficits but also deficits of adaptive function in the conceptual, social and practical areas (DSM-5).

**Pandemic:** the spread of the disease in many countries

**Pathogenic:** the microorganism that enters a person and causes him a disease.

**Quarantine:** restricting movement and contact in people considered to be infected with a contagious disease.

**Social distancing:** the set of non-pharmacological interventions and measures taken to slow the transmission of an infectious disease (e.g., distance keeping, hand washing, teleworking).

**Transmissibility:** the ability to transmit a pathogen from an infected person to a healthy one.

### **Pedagogical glossary**

**Concept map:** a diagram that graphically depicts concepts and the correlation between them.

**Easy to Read (EtR):** adapted text for students with ID, easy to read and understand, which avoids abstract concepts and metaphorical speech, turning the text into plain content.

**Inquiry:** students' involvement in active learning activities by applying scientific skills. Students use these skills to answer scientific questions, posed by themselves or by the teacher, through the handling of real data, collected by themselves through experimentation or provided to them. Some common research skills include model construction and use, conducting experiments, collecting and organizing data, manipulating variables, drawing inferences based on data, and communicating scientific issues.

**Models in science education:** concern selective representations of the natural world with the aim of better understanding by students.

**Prompting:** the provision of partial assistance incorporates appropriate stimuli and their management during teaching.

**Simulations:** digital representation of functions, processes and phenomena with an educational character. Usually, the simulations cannot be performed in physical conditions for practical reasons.

**Single subject design:** is an experimental research design that studies the student's self-performance over time.

**Structured inquiry:** students explore a question posed by the teacher through a defined process, in which they receive clear step-by-step instructions at each stage.

**Task analysis:** a teaching technique which divides a goal in small stages-learning steps, in order for the students with ID to understand the task effectively.

**Time delay:** a delay that separates the occurrence of two events.

### **Competences/ Learning goals**

#### *I. Knowledge (concepts)*

Infectious diseases, virus, epidemic/pandemic, virus, symptoms, diagnosis, prevention, social behavior, intellectual disabilities, scientific literacy, health literacy, STEM, STSE.

#### *II. Skills*

*General:* inquiry skills (identify relations between variables, describe thinking process, data as evidence, assessment, discussion and communication), scientific content questions engagement, collect data

#### *Students' profile:*

The target group enrolls students with intellectual disabilities of secondary education who meet the following inclusion criteria: (i) a diagnosis of mild ID – mental age of students with mild ID concerns typical developing students with chronological age of 9-12 years old (ii) verbal communication, (iii) normal range vision and hearing to interact with materials, (iv) functional reading and writing skills, and (v) basic computer skills (e.g., ability to use the mouse to click on options and follow directional cues).

#### Objectives:

- follows guidelines
- stays on task
- indicates willingness
- communicates, motivation
- enhances preparedness and adaptability skills
- improves mnemonic skills
- understands information and problem solving
- assessing decision-making / initiative / autonomy / self-care skills
- acquires higher level of academic content
- generalizes, maintains

### *Specific:*

- develops scientific literacy skills (acquire and use basic vocabulary of science, indicate basic understanding)
- describes contents and processes
- identifies causal relations between terms/variables
- assesses the impact of social behaviour in epidemic/pandemic conditions
- selects and applies protection/prevention practices in hygiene, social distancing, vaccination
- develops digital literacy / uses dynamic simulations
- is able to transfer new knowledge to classmates, teachers, parents and caregivers
- develops and apply critical thinking
- set priorities / makes decisions
- designs and develops a project based on structured inquiry.

### III. Affective/Attitudes

- strengthens awareness and sensitivity regarding the challenges of public health
- identifies patterns or attitudes of health at risk
- identifies barriers in access health services and information
- develops empathy and equal contributions in health promotion
- identifies science and society relevance
- understands behaviour standards
- understands the difference between opinions/ perceptions based on inadequate information or stereotypes and reliable information
- adopts socially sensitive attitudes towards health.

### **Classroom organization requirements**

During all sessions students work in small groups guided by the teacher.

### **Prerequisite knowledge and skills**

- Students have experienced diseases, especially the COVID-19 pandemic.
- Students experience barriers based on their disability, as well as other social disparities regarding human rights (accessibility and equal participation).
- Functioning of basic hygiene rules as a non-pharmaceutical means of prevention of infectious diseases.
- Previous knowledge of structure of matter and molecules would help students to understand viruses.
- Basic computer skills.

### **School research project**

#### Topics

Main topic: What is an infectious disease?

Specific research questions:

- What is a virus?
- How the vaccination protects from an infectious disease?
- How does a social behaviour affect an epidemic outbreak?

#### I. Research management, design, and administration

Experimental design of single-subject to assess learning outcomes of students with ID regarding scientific literacy skills, emphasizing on COVID-19 pandemic. Several phases of inquiry in line with single-subject design are conducted by the teacher.

#### II. Data analysis and reporting

Collect and analyze descriptive statistics data. Visual analysis of individualized graphs of the participants through data referring to level, trend, stability/variability. Descriptive statistical data for baseline and intervention, such as mean, median, range.

#### III. Target audience for recommendations

Students, parents, caregivers, teachers, local agency, intellectual disabilities associations.

#### IV. Public debates and recommendations

Publication of research findings at a school event or a local community festival.

#### **Teacher guidance notes**

Students present limitations based on the profile of ID which means reduced understanding of cognitive and social skills in health promotion.

Identifying life value helps in new standards of behavior (social distancing, use remote communication, vaccination) for health outcome.

Designs and develops interventions for information access and searches supportive networks.

Handles social disparities carefully to avoid stereotypes or stigmatization of students.

Focus on activities that bridge disparities.

Focus on understanding of inquiry experience through their role as researchers.

#### **Teacher professional development actions**

- recognizes disparities and adapt processes to support access and equal participation
- motivates students to engage with STEM
- practical knowhow in STEM/science/health science content applying evidence-based practices (structured inquiry, task analysis, prompting, time delay)
- training in project and infographic implementation
- foster teachers' skill sets regarding single case research designs integrating DLOs in inquiry activities

#### **Assessment activities**

Initial assessment of prior knowledge and attitudes of students (baseline phase).

Continuous assessment of learning outcomes by applying multiple measurements in each phase of the process.

Assessment of the specific profile of ID through observation.

Assessment of the experience (LOES-S tool concerning learning, quality, experience).

Total assessment.

Students complete the KWL chart and observe the learning process, too.

#### **Digital Learning Objects (DLOs)**

All digital learning objects follow the principles of the universal design framework to be accessible by all students with ID. They focus on basic science vocabulary and comprehension about infectious diseases and their correlations (description, symptoms, transmission, and prevention measures).

##### *I. Concept map COVID 19 (<http://photodentro.pafse.eu/handle/8586/40>).*

The goal of the digital learning object is to train students with intellectual disabilities to apply basic vocabulary and comprehension regarding an infectious disease and especially the coronavirus COVID-19. The learning object is consisted of three propositions or statements, that are presented successively based on task analysis steps. Students choose the given words or phrases to complete the propositions. Since each proposition is completed, the learning object provides a reinforcement and a short feedback is presented to the student.

##### *II. Concept map of symptoms COVID-19 (<http://photodentro.pafse.eu/handle/8586/41>).*

The goal of the digital learning object is to train students with intellectual disabilities to apply basic vocabulary about symptoms of an infectious disease. The learning object is consisted of four propositions or statements, that are presented successively based on task analysis steps. Students choose the given words to complete the propositions. Since each proposition is completed, the learning object provides a reinforcement and a short feedback is presented to the student.

##### *III. Concept map of the transmission of COVID-19 (<http://photodentro.pafse.eu/handle/8586/42>).*

The goal of the digital learning object is to train students with intellectual disabilities to apply basic vocabulary and comprehension about transmission of an infectious disease. The learning object is consisted of three propositions or statements, that are presented successively based on task analysis steps. Students choose the

given words to complete the propositions. Since each proposition is completed, the learning object provides a reinforcement and a short feedback is presented to the student.

#### IV. Infographic COVID-19 (<http://photodentro.pafse.eu/handle/8586/43>).

The dynamic infographic using visual representations and EtR concerns the measures taken to slow the transmission of infectious diseases and especially the coronavirus COVID-19. The goal of the DLO is to familiarize students with prevention measures and to enhance decision making skills during a pandemic outbreak. The learning object is consisted of twelve spaces, that are colored green (measures to protect) or red (measures against the protection) in line with the given images. Students choose the given images to complete the boxes.

#### **Supplementary educational resources (SERs)**

The following SERs have been retrieved from online resources

- I. <https://www.rch.org.au/ccch/covid-19/> (translated infographic about COVID-19)
- II. <https://www.youtube.com/watch?v=MVvVTDhGqaA> (translated video about COVID-19, Eurac Research)
- III. <https://www.unicef.org/greece/en/stories/day-school-during-covid-19> (video A Day at school, Unicef)
- IV. [https://www.youtube.com/watch?v=6lJQ123\\_4e8](https://www.youtube.com/watch?v=6lJQ123_4e8) (All about Coronavirus: A Video for Kids and Their Families | University of Michigan School of Public Health)
- V. <https://www.youtube.com/watch?v=GFm45J8d7HI> (video about viruses)
- VI. <https://www.youtube.com/watch?v=oCelMyMtRck> (video about viruses)

#### **Teacher-learning activities**

##### **Principal target**

Biology, Physics and Chemistry classes (students with mild intellectual disabilities, secondary education: 14-25 years old students)

At least 6 sessions/classes of 20-30 minutes

Science teachers in Greece are specialized in Physics, Chemistry, Biology and Geography due to teacher branch in secondary education. To increase interdisciplinary, other scientists/colleagues could be integrated in the enactment of the scenario, especially in the school research project evaluation (e.g., doctors or microbiologists). As the scenario will be applied in a special education school, all teachers are qualified in special education practices.

##### **Training phase**

Students' training based on DLOs implementation with simple task analysis steps.

#### **Lesson 1 (Baseline: orientation phase)**

Students are informed about their optional participation and the possibility to withdraw of the research at any time. In addition, students are informed that the questionnaires or worksheets are anonymous without any type of grading.

- Orientation phase is started by the main question of the whole scenario “what is an infectious disease?”. Two short videos (SER II <https://www.youtube.com/watch?v=MVvVTDhGqaA>, SER III <https://www.unicef.org/greece/en/stories/day-school-during-covid-19>) increase curiosity and interest of students around the COVID-19 pandemic and its impact to daily life. The aim of the current phase is to get the learner started with a new topic for investigation and engage them in a debate on the question with guidance and prompting.
- After the completion of the first activity, students are informed about the objectives of the lesson and apply their initial knowledge and attitudes around the infectious diseases, correlating viruses, symptoms, and protection. The first activity encourages students to explore the educational material (e.g., videos) through relevant questions and share ideas in small groups with guided learning.
- DLO I (<http://photodentro.pafse.eu/handle/8586/40>), DLO II (<http://photodentro.pafse.eu/handle/8586/41>), and DLO III (<http://photodentro.pafse.eu/handle/8586/42>) are applied for students to complete the three conceptual maps with a set of concepts related to infectious diseases and their correlations (symptoms, transmission, prevention). The topics are supported by task analysis steps, reinforcements are activated after each mastery step, as well as feedback through visual representations, to support learning and reduce reading comprehension difficulties, as well as to increase motivation.

- Students gather and organize their responses at the first and second columns *What I Know* and *What I want to Know* of the graphic organizer.

### Lesson 2 (Intervention: main inquiry – conceptualization – investigation)

- The second phase of inquiry concerns the conceptualization of main inquiry which starts with the questions “what is a virus?” which is linked to the previous session. During this initial investigation, students are engaged in an inquiry identifying that a virus is too small and can be seen only with a microscope. Students describe the virus, emphasizing on coronavirus, and identify that a virus is microscopic.
- Completing this module, students are expected to use the scientific vocabulary for viruses and understand their interfaces, acquiring basic understanding (what is a virus, which is its structure, how it could be seen, how a virus is transmitted, which symptoms can a virus cause). At this activity the goal for students is to make meaning.
- DLO I (<http://photodentro.pafse.eu/handle/8586/40>), DLO II (<http://photodentro.pafse.eu/handle/8586/41>) and DLO III (<http://photodentro.pafse.eu/handle/8586/42>) describe how an infectious disease emerges.
- Brief review of new information contributes to students’ understanding are asked to try to predict ways to protect themselves from viruses based on their experience with the COVID-19 pandemic. Students work in pairs, are encouraged by the teacher, and summarize on the graphic organizer. They complete the concept maps with an appropriate sequence of instructions and recall and comprehension questions for the evaluation of the teaching unit.
- Assessment could include questions as follows:
  1. What is a virus?
  2. Why cannot we see a virus?
  3. How can you see a virus?
  4. How can a virus infect an organism?
  5. How the virus is called when it can cause a disease?
  6. How can a virus be transmitted?
  7. how the situation in which a virus has infected too many people around the world is called?

### Lesson 3 (Intervention: main inquiry – conceptualization – investigation)

- The current phase focuses on ways of prevention and protection towards COVID-19 pandemic highlighting vaccination. Students are asked to identify the importance of reliable information in contrast with daily experiences or attitudes concerning stereotypes or misinformation. A lot of students with ID usually face co-occurring health problems, experience high levels of anxiety and present social isolation behaviors.
- Students are expected to understand that vaccine functions protecting people, emphasizing vulnerable groups. In addition, students may recognize the importance of taking on a responsibility as an equal member of the society and adopt social skills in line with public health promotion. Students may enforce high levels of cognitive skills, as they are trained in critical thinking, decision making and reasoning.
- DLO IV (<http://photodentro.pafse.eu/handle/8586/43>) is designed to help students acquire information regarding the prevention measures, such as vaccination and adopt attitudes in line with scientific explanations.
- Students summarize new skills and new terms at the graphic organizer. They answer relevant worksheets by following guidelines. Students have an overview of major acts that prevent the emergence of infectious diseases and their evolution through epidemics to pandemics.
- Assessment could include questions such as:
  1. How can you protect yourself from being infected with a virus (e.g., coronavirus?)
  2. What is a vaccine?
  3. How does the vaccine work?
  4. How can we acquire immunity?
  5. Does vaccine protection last forever?
  6. What can you do to stay safe longer?
  7. Can you get sick after the vaccination?

### Lesson 4 (Intervention: applying new knowledge and skills)

- Students apply new terms and skills on a social behavior problem. Initially, it is suggested students to watch a short video (SER IV [https://www.youtube.com/watch?v=6IJQ123\\_4e8](https://www.youtube.com/watch?v=6IJQ123_4e8)) and discuss on it. Then, students play an educational game with social-communicative challenges to apply scientific terminology of health.
- By this session, students are expected to follow cognitive processes, be trained in metacognitive skills, such as critical thinking, reasoning, and assessment regarding a problem (students with ID usually meet a lot of barriers in these types of skills).
- A couple of students interact with DLO IV (<http://photodentro.pafse.eu/handle/8586/43>) and collaborate to take on a role (a girl or a boy) and make decisions independently. The specific process includes a route with or without taking protective measures which concludes to a friendly meeting during a pandemic outbreak.
- Completing the task, students communicate their conclusions and highlight the importance of individual and societal responsibility during a pandemic outbreak.
- Assessment could include questions, such as:
  1. How could the outbreak of COVID-19 infection be overcome?
  2. What are the precautionary measures?
  3. How can everyone take decisions to prevent the spread of an infection?
  4. What does it mean that it is my social responsibility to spread the pandemic?
  5. What does social distancing mean?
  6. During a pandemic you can mention prevention measures?
  7. What is quarantine?

### **Lessons 5 - 6 (Maintenance – Generalization: applying new knowledge and skills – Conclusions)**

- This section concerns the maintenance and the generalization phases of the acquired knowledge of students with ID. Completing the third column named *What I learned* of the graphic organizer, students are asked to use their knowledge and new skills about infectious diseases and relevant determinants through a research project, which reaches the production of an infographic. They develop an accessible, relevant, and curiosity-driven action with guidance, which frames the flow of the initial proposed idea to termination, keeping in view all the phases of the previous sessions. The teacher coordinates, explains, facilitates, cooperates, and encourages.
- Students are separated in groups to collaborate and justify an inquiry task, including the phases of engagement, conceptualizing, inquiry, and conclusions. They are expected to apply inquiry skills. For example, they formulate questions and hypotheses, describe the thinking process, analyze, and interpret data and evaluate the outcomes in relation to the research question and hypotheses. Finally, they can communicate their knowledge in a schooling event.
- DLO I (<http://photodentro.pafse.eu/handle/8586/40>), DLO II (<http://photodentro.pafse.eu/handle/8586/41>), DLO III (<http://photodentro.pafse.eu/handle/8586/42>) and DLO IV (<http://photodentro.pafse.eu/handle/8586/43>) help students to build and present a static infographic about infectious diseases and relevant determinants.
- The students create an infographic, which describes the whole project and presents the outcomes. Discussions among students and other engaged groups which attend the open schooling event (teachers, parents, caregivers, community members) contribute to knowledge diffusion towards the school and community. The final deliverables are proposed to be made public within a school event and / or in the local community through a local media, possibly online.
- The assessment could use the “Learning object evaluation survey—students” (LOES-S questionnaire) in 5 item Likert scale.
  - Learning
    1. Working with the learning object helped me learn
    2. The feedback from the learning object helped me learn
    3. The graphics and animations from the learning object helped me learn
    4. The learning object helped teach me a new concept
    5. Overall, the learning object helped me learn
  - Quality
    6. The help features in the learning object were useful
    7. The instructions in the learning object were easy to follow
    8. The learning object was easy to use
    9. The learning object was well organized
  - Engagement



10. I liked the overall theme of the learning object
11. I found the learning object motivating
12. I would like to use the learning object again
13. What, if anything, did you LIKE about the learning object?
14. What, if anything, did you NOT LIKE about the learning object?

### **Supplementary learning activities**

#### I. Video watching and discussion

- It is suggested to enrich the previous learning activities with two videos in line with the description of viruses, their structure and reproduction. This section could be conducted within the generalization phase of the intervention, after the completion of the designed sessions and during the school project. The teachers in cooperation with special educators could present to the students the two videos:

SER V: <https://www.youtube.com/watch?v=GFm45J8d7HI>

SER VI: <https://www.youtube.com/watch?v=oCelMyMtRck>

regarding the viruses and their microscopic function.

- A short discussion based on adaptations would facilitate the students to understand the educational supplements and extend their new knowledge.

#### II. Handcrafting

Some hand-work activities (drawing, creating through handcrafting, etc.) could take place within the context of this learning sequence. In this way students with mild intellectual disabilities would improve their skills in social and practical domain, too, as they usually demonstrate high interest and motivation on hand working activities.

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[www.who.int/ncdswww.who.int/mental\\_health](http://www.who.int/ncdswww.who.int/mental_health)

<https://www.who.int/activities/translating-science-for-better-health-emergency-preparedness>

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19-schools>

<https://www.mencap.org.uk/advice-and-support/coronavirus-covid-19>

<https://www.mencap.org.uk/advice-and-support/coronavirus-covid-19/coronavirus-help-stay-safe-and-well>

<https://www.cdc.gov/coronavirus/2019-ncov/easy-to-read/index.html>

## Assessment Questionnaire- Knowledge, Skills, Beliefs, attitudes and behavior

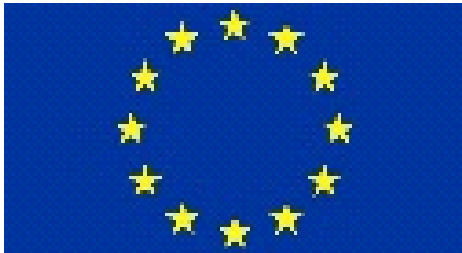
**Scenario topic:** “Cognitive and affective determinants of health during an epidemic/pandemic outbreak for students with Intellectual Disabilities”

Knowledge	
1. Identifies the structure of a virus.	<p><b>Question 1.1:</b> What is a virus? A) A microscopic plant. B) A microscopic infectious agent. C) A small animal.</p> <p><b>Question 1.2:</b> Why cannot we see a virus? A) Because a virus is very small. B) Because a virus is always hidden. C) Because a virus moves very fast.</p> <p><b>Question 1.3:</b> How can we see a virus? We can see a virus through: A) glasses. B) a magnifier. C) a microscope.</p>
2. Recognizes the most risk factors of a virus and defines relevant concepts.	<p><b>Question 2.1:</b> Which of the following is an infectious disease? A) Asthma. B) Cancer. C) COVID-19.</p> <p><b>Question 2.2:</b> When a virus causes a disease, this virus is called: A) pathogenic. B) infection. C) host.</p> <p><b>Question 2.3:</b> A virus cannot be transmitted A) through air. B) through physical contact. C) through a healthy person. <b>Question 2.4:</b> When a virus has infected too many people around the world, it is called: A) an epidemic. B) a pandemic. C) nothing like that.</p>
3. Identifies the importance of vaccination to track the progress of a pandemic.	<p><b>Question 4.1:</b> How can you protect yourself from being infected by a virus? A) being vaccinated. B) visit the doctor. C) you cannot protect yourself whatever you do.</p> <p><b>Question 4.2:</b> How do vaccines work? A) They strengthen body's defence/immune system. B) They cause other diseases. C) They last forever.</p>
4. Characterizes the association between the precautionary measures and the infection and applies new knowledge in decision making.	<p><b>Question 5.1:</b> What are the precautionary measures? A) A doctor diagnosis for a disease. B) Some acts that help prevention from diseases. C) The symptoms of a disease.</p> <p><b>Question 5.2:</b> How can you make decisions to prevent the spread of an infection? A) Social distancing. B) By the law. C) There is nothing you can do.</p> <p><b>Question 5.3:</b> An example of social distancing is A) a pharmacological intervention. B) a party in a crowded place. C) hand washing.</p>
SKILLS	
1. Can propose concrete actions towards promoting public health.	<p><b>Question 1.1:</b> Which individual actions can be taken to help advancing public health during a pandemic outbreak? A) Acquire scientific and health literacy. B) Rely yourself on the others. C) Visit the doctor. <b>Question 1.2:</b> Which individual actions can be taken to help advancing social behaviour during a pandemic outbreak? A) place yourself in quarantine. B) describe the precautionary measures. C) train yourself in decision making skills.</p>
2. Can communicate the adoption of choices by others (e.g., family, peers, friends).	<p><b>Question 2.1:</b> I feel able to discuss and communicate the adoption of actions that help achieving public health by others (family, peers, friends). 1) definitely true ... 5) definitely false.</p> <p><b>Question 2.2:</b> I will try to discuss and communicate the adoption of actions that help achieving public health by others (family, peers, friends). 1) definitely true ... 5) definitely false.</p>

<p>3. Is able to demonstrate values and to adopt individual attitudes that lead to public health.</p>	<p><b>Question 3.1:</b> I feel able to adopt individual attitudes that lead to public health during a pandemic outbreak. 1) definitely false... 5) definitely true. <b>Question 3.2:</b> I feel able to identify social behaviour actions that lead to public health during a pandemic outbreak. 1) definitely false... 5) definitely true.</p>
<p>4. Selects appropriate scientific data and information to describe the progress of public health during a pandemic outbreak.</p>	<p><b>Question 4.1:</b> I feel able to identify scientific sources to describe the progress of public health during a pandemic outbreak. 1) strongly disagree... 5) strongly agree. <b>Question 4.2:</b> I know the main precautionary measures to contribute to public health promotion. 1) strongly disagree... 5) strongly agree. <b>Question 4.3:</b> I feel able to describe a thinking process regarding a social behaviour problem during a pandemic outbreak. 1) strongly disagree... 5) strongly agree.</p>
<p>5. Can identify the community challenges in relation to pandemic outbreak, connect them with social behaviour and find the relevant resources to address them.</p>	<p><b>Question 5.1:</b> I feel able to identify the main community challenges during a pandemic outbreak in relation to public health. 1) definitely false... 5) definitely true. <b>Question 5.2:</b> I can understand how the community challenges are related to public health. 1) definitely false... 5) definitely true. <b>Question 5.3:</b> I feel capable of proposing actions that address public health. 1) definitely true... 5) definitely false.</p>
<p><b>Beliefs, attitudes and behavior</b></p>	<p>Include: There are no correct or incorrect answers; we are only interested in knowing your perspective.</p>
<p>1. Believes that is important to contribute to the public health goals.</p>	<p><b>Question 1.1:</b> My participation and actions will increase the chances of public health promotion during a pandemic outbreak. 1) strongly disagree... 5) strongly agree. <b>Question 1.2:</b> I am willing to adopting actions that contribute to the public health promotion during a pandemic outbreak (e.g., wear a mask, use distance communication, acquire awareness regarding vaccination, etc.). 1) Extremely unlikely... 5) Extremely likely. <b>Question 1.3:</b> My family and friends think that I should adopt actions that contribute to public health promotion. 1) Extremely unlikely... 5) Extremely likely.</p>
<p>2. Believes that working on public health promotion can lead to positive outcomes at the community level.</p>	<p><b>Question 2.1:</b> To contribute to public health promotion will lead to positive outcomes at my community. 1) strongly disagree... 5) strongly agree. <b>Question 2.2:</b> My community thinks that public health promotion will bring positive outcomes 1) Extremely unlikely... 5) Extremely likely.</p>
<p>3. Believes that it is crucial to identify obstacles and problems faced by communities regarding public health.</p>	<p><b>Question 3.1:</b> The identification of obstacles and problems that my community faces is crucial for solving them. 1) strongly disagree... 5) strongly agree. <b>Question 3.2:</b> It is possible to identify obstacles and problems that my community faces regarding public health 1) strongly disagree... 5) strongly agree. <b>Question 3.3:</b> It is common knowledge that it is necessary to identify obstacles and problems that the community faces for solving them. 1) strongly disagree... 5) strongly agree.</p>
<p>4. Believes that efforts must be employed to achieve public health.</p>	<p><b>Question 4.1:</b> It is important to employ efforts to achieve public health. 1) strongly disagree... 5) strongly agree. <b>Question 4.2:</b> It is possible to employ efforts to achieve public health. 1) strongly disagree... 5) strongly agree. <b>Question 4.3:</b> It is common knowledge</p>

	<p>that it is necessary to employ efforts to achieve public health. 1) strongly disagree... 5) strongly agree.</p>
<p>5. Has intention to perform social behaviour in his/her lifestyle during a pandemic outbreak.</p>	<p><b>Question 5.1:</b> I will try to contribute to prevention of a pandemic outbreak. 1) Extremely unlikely... 5) Extremely likely. <b>Question 5.2:</b> I plan to incorporate social distancing in my day-to-day life during a pandemic outbreak. 1) Strongly disagree... 5) Strongly agree.</p> <p><b>Question 5.3:</b> I plan to be vaccinated during a pandemic outbreak. 1) Strongly disagree... 5) Strongly agree. <b>Question 5.4:</b> I plan to influence my family and friends to be vaccinated during a pandemic outbreak. 1) Strongly disagree... 5) Strongly agree.</p> <p><b>Question 5.5:</b> I will try to walk or bike instead of taking public transport during a pandemic outbreak. 1) Strongly disagree... 5) Strongly agree.</p> <p><b>Question 5.6:</b> Among the following statements, choose the one that best describes what you currently think. 1) I do not promote social behaviour in my day-to-day life, and I also have no intention of doing so. 2) I do not promote social behaviour in my day-to-day life, but I have been thinking about the possibility of starting to do so. 3) I never or rarely promote social behaviour in my day-to-day life, but soon I will start doing it on a regular basis. 4) I do promote social behaviour in my day-to-day life regularly, but I have only begun to do so in the last 6 months. 5) I do promote social behaviour in my day-to-day life regularly I have been doing so for longer than 6 months.</p>
<p>6. Is committed to communicate and address the challenges of the community in relation to public health.</p>	<p><b>Question 6.1:</b> I intend to discuss and communicate the challenges of the community in relation to public health. 1) Extremely unlikely... 5) Extremely likely.</p> <p><b>Question 6.2:</b> It is expected from me that I discuss and communicate the challenges of the community in relation to public health. 1) Strongly disagree... 5) Strongly agree.</p>
<p>7. Attitude toward public health.</p>	<p><b>Question 7.1:</b> For me to achieve public health is  harmful : _____ : _____ : _____ : _____ : _____ : beneficial  pleasant : _____ : _____ : _____ : _____ : _____ : unpleasant  good : _____ : _____ : _____ : _____ : _____ : bad  worthless : _____ : _____ : _____ : _____ : _____ : valuable  enjoyable : _____ : _____ : _____ : _____ : _____ : unenjoyable</p>

## Partnerships for Science Education



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